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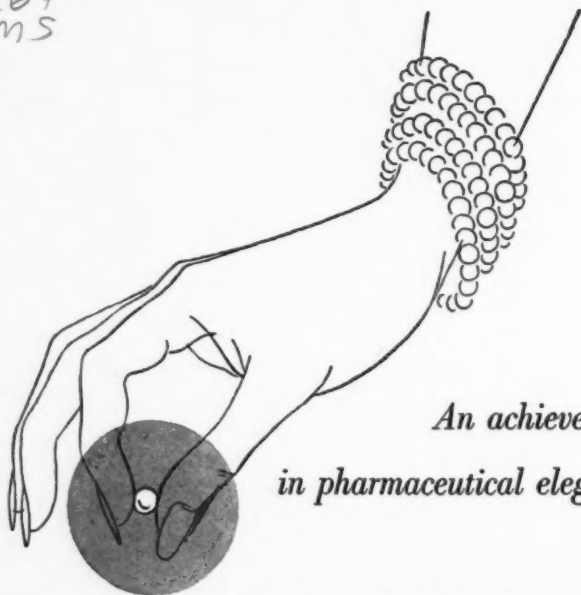
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1. Dixon, H. H., Dickel, H. A., Coen, R. A., Haugen, G. B., American Journal of Medical Sciences, 220, p. 23-29, July, 1950.

2. Berger, F. M., Schwartz, R. P., Journal American Medical Association, p. 772-774, Vol. 137, No. 9, June 26, 1946.

3. *ibid* p. 772.

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EDITORIAL

Paracelsian Renaissance

By FREDERIC R. STEARNS, M.D.

Editor

While medicine is international in scientific scope, it cannot be denied that physicians in different countries have different approaches to medical problems. Available space prohibits at this time investigation into this important topic. In the United States a sound pragmatism is predominant; the same holds true even to a higher degree, for most of the Latin-American countries. In Russia, as it is well known, a materialistic dogmatism rules medicine not less than politics; yet, the predilection for certain esoteric eccentricities, deeply ingrained in the cultural history of Russia, could not be entirely annihilated in medicine, (as emanating from some publications) by the iron authority of a misled Hegelianism. Medicine in the Scandivanian countries was always guided by a judicious eclecticism with distinct leanings toward a physico-chemical approach which is essentially French in origin. The Mediterranean countries frequently have produced isolated original record achievements (e.g. recently Cerletti and Bini in Italy [electroshock]; Ramón y Cajal in Spain [synapses]; Moniz in Portugal [prefrontal lobotomy and cerebral arteriography]).

Germany, on the other hand, has displayed a curious mixture of medical sobriety (Virchow, Koch, Ehrlich, etc.) and medical mysticism, a mixture which she has equally exhibited in her cultural and political history.

It appears that as a reaction to

the menial aberration of Nazi medicine again a Faustic tide is rising which is the more interesting as it is without any inner contact to American medicine. It is important, nevertheless, to give account of such new ways in medical thinking as they may, or may not, prove to be fermentative in the further development of medicine as a whole.

As significant instances of this present trend in German medicine we shall report on a book and a paper, recently published.

Dr. med. H. Siegen's book "Theorie und Praxis der Neural-Therapie mit Impletol—Theory and Practice of the Neural-Therapy with Impletol (Staufen-Verlag, Cologne and Krefeld, 1951) is momentous because of its theoretical implications. It is set forth that in the comprehension of pathologic reactions a turn has taken place from organic statics to functional dynamics; the cellular pathology of Virchow has been replaced by Nonnenbruch's holistic interpretation of diseases as merely general systemic reactions. The author quotes the physiologist H. E. Herling who has made the following 'prophetic' statement: "the wise utilization of the vegetative nervous system will, one day, make up the main part of the therapeutic art."

The four supporting pillars of the neural theory are: 1) the histologic investigations of Stoehr, Jr., and his associates on the sympathetic trunk and the 'terminal reticulum'. The pathologist Staemmler was among the first to report on cell multiplication in the thoracic sympathetic ganglia in angina pectoris

and bronchial asthma. Stoehr and Sunder-Plassmann studied the sympathetic ganglion cells in autopsies of just executed individuals and found that the emotional strain of imprisonment alone had caused regularly considerable morphologic changes in these ganglion cells. It is admitted that the demonstration of the neurofibrils in the 'terminal reticulum' is difficult. 2) the relation pathology of Rickers and his school. According to the type, intensity and duration of a stimulus, the nervous system responds with various degrees of irritation. A non-physiologic stimulus acts first locally or generally on the blood circulation. Only secondarily a tissue damage occurs, both in the directions of proliferation and of degeneration. According to relation pathology every stimulus first affects the nervous system which constitutes the first link in the chain of physiological and pathological events. The relations between blood and tissue which are fundamental for morphologic organ changes are but subsequent and subordinate steps. 3) The neural pathology of Speransky who investigated which general pathological reactions could be caused by experimental and clinical lesions of the central and peripheral nervous systems. He contended that disease is a reaction of the entire organism to a stimulus, under the influence of the nervous system. Therefore it is possible to treat diseases by 'neural-therapy'. If this treatment is consistently directed, the 'neural disturbance field' is abolished and its general projective effects heal spontaneously. 4) The neural therapy and the diagnostic-therapeutic 'second-phenomenon' (Sekundenphaenomen) of F. Huneke. Huneke states that only if the focus, maintaining the sensitization and, thus, responsible for the organic effects, is correctly injected (by a preparation called 'Impletol' whose physiologic action, however, still cannot be satisfacto-

rily explained) the entire syndrome can be abated. There is always only one 'disturbance field' which incites the remote pathologic effects, never several 'disturbance fields' operating simultaneously. Huneke's merit, according to the author, must be seen in his fundamental rejection of humoral-cellular thinking and in the emphasis on an "entelechiol functional association of the organic systems carried by the vegetative nervous and the endocrine systems." Thus, a discarding of the symptomatic-localisatory treatment took place in favor of a "causal-nerval holistic therapy". Statistics of the Second University Hospital for Internal Diseases at Halle support Huneke's theory by demonstrating the therapeutic effects of the 'causal-nerval' therapy in such a variety of diseases as migraine, occipital neuralgia, sciatica, humero-scapular periarthritis, peptic ulcer and diseases of the biliary system.

A second publication, a paper, which we will refer to, deals with a topic which, for a considerable time, has aroused the interest of German physicians, the sway of meteorological disturbances on diseases. Dr. K. Straube and Dr. H. Scholz (Ueber die Einwirkung komplexer Wettervorgaenge auf das vegetative Nervensystem—On the influence of complex weather alterations on the vegetative nervous system—, Deutsche med. Wchnschr. 19:634, 1951) state that the effect of weather on the human organism is not due to single elements such as pressure, temperature, humidity, etc., but that weather is a complex entity which may produce an increased susceptibility for diseases by the way of the vegetative nervous system. Straube's investigations with epinephrine and acetylcholine electrophoresis, which test sympathetic-parasympathetic tonus relations, have evidenced that skin reactions can be produced whose intensity is related to meteorologic events. In

undisturbed weather the cutaneous reactions were weak while with the passing of fronts the skin responses became more marked, and this the stronger 'the more abrupt the new air masses approached'. The antagonism of cold and warm fronts was not of as much pathological significance as the meteorological changes which provoked a dominance of parasympathetic reactions. This phenomenon has been called by the authors "intervegetative dysharmony", which may remain in effect for many days and which may cause a 'premorbid' condition, under the influence of which serious pathologic reactions are prone to develop such as asthmatic and angina pectoris attacks, infectious diseases, diseases of the metabolism, etc.

In feeling into this approach to

medicine which manifests itself in a great many of German medical publications, one can presently notice a rebirth of a Paracelsian spirit. Many of the statements appear like modernized quotations of the Opus Paramirum of the "Errant Knight of Science", Theophrastus Bombastus ab Hohenheim:

"When we administer medicine, we administer the whole world, with all its virtues." . . . "I do not believe in the ancient doctrine of complexions and humors which have been falsely supposed to account for all diseases." . . . "People have neglected to study the secret force and invisible radiations . . . Nature has, within itself, forces visible and invisible, and all are natural."*

*The quotations are taken from PARACEL-SUS by Henry M. Pachter, Henry Schuman, New York, 1951.

ORIGINAL ARTICLES

Laryngeal Cancer

By M. F. ARBUCKLE, M.D.

St. Louis, Missouri

Laryngeal cancer is a deadly disease if neglected. It occurs much more frequently than generally thought to be true. Contrary to the general conception, it is in most cases readily cured if diagnosed early and if treated early in its course, early diagnosis and early treatment being the keynote in successful treatment of cancer of the throat. Diagnosis is made with comparative ease and conformed by biopsy, an essential in each case.

Symptoms: persistent hoarseness

with nonproductive cough, usually with freedom from pain, is the first complaint in the early stages. In every case with persistent hoarseness which is unexplained the patient should have at least one complete laryngeal examination.

With a laryngeal mirror the examiner can see, in the presence of cancer, a mass on the true cord, or on the false cord, or on the epiglottis. In the first few weeks this mass moves freely with the laryngeal walls; later there is interference with movement as infiltration occurs in and around the arytenoid joints. The mass and infiltration cause hoarseness by interfering with approximation of the free border of

the true cords. The mass usually begins growing on the free border of the true cords, at the junction of the middle and anterior third of the cord on one side. It has the appearance of a closely cropped meadow; that is, it is white in color and surrounded by a red color border. When on the epiglottis or arytenoid the appearance is similar but the hoarseness is less marked. Later in the course of the disease ulceration appears on the surface, then the differential diagnosis for tuberculosis and syphilis must be made.

In tuberculosis of the larynx the initial lesion usually appears first in the interarytenoid region, later along both vocal cords and finally infiltration of the epiglottis. Pain is a prominent symptom with severe pain on swallowing, often interfering with taking of food. Hoarseness is present and, of course, examination of the chest should give positive evidence of pulmonary tuberculosis.

Syphilis of the larynx is seen much less frequently than was true in years gone by. When present, secondary syphilis of the larynx appears as flat ulcers with fiery red background. Tertiary syphilis appears as a crater-like ulcer in the vicinity of the arytenoids and is surrounded by infiltration. In any case, where doubt exists the necessary laboratory studies will help. Occasionally cancer and syphilis co-exist and both must be treated. In every case of suspected cancer a biopsy should be made and if negative it should be repeated if one strongly suspects cancer. In making a biopsy it has been my custom in the last few years to hospitalize the patient and do a direct laryngoscopy. If desirable the laryngoscopy may be repeated, a not too frequent occurrence. Also the occasional complicating laryngeal reaction may be guarded against and dealt with if it occurs. Thus, for example, the reaction following biopsy may cause

sufficient swelling to necessitate a tracheotomy.

If the biopsy diagnosis is returned positive for cancer, we must decide on the treatment to be recommended. If the cancer is on the cord without interference with movement we may know the lymphatics have not been invaded and by laryngofissure (Thomsen's method¹), we may expect a lasting cure and a useful voice. There are, however, exceptions to every rule. Thus, within the past week, I received word from a patient who had a laryngofissure in 1934 and who has been well since that time. Now he is said to have positive glands in his neck on the same side where the cancer was first removed. When there is interference with movement of the cord it is positive proof of involvement of the lymphatics surrounding the arytenoid cartilage and no longer may we expect a cure by laryngofissure. We are then obliged to recommend laryngectomy with neck dissection on both sides. Occasionally x-ray therapy will provide a cure, especially if the thyroid cartilages are removed before x-ray therapy is begun. However, it is my belief that the surest way of obtaining a cure is by laryngectomy with neck dissection according to the method of Joseph Ogura.² This is a formidable operation requiring considerable time (three to four hours), but it is surprising how well patients react and how the wound heals. The operative mortality is extremely low.

The occasional case recommended for laryngectomy and neck dissection presents a problem because of age or disease which makes radical surgery impossible. Knowing of the long standing difficulty in giving x-ray therapy and avoiding the chief complication, namely, death of laryngeal cartilages, it occurred to me in 1940, to remove the cartilages by surgical dissection and then give the x-ray treatment. In twenty-five

or thirty cases treated by this method we were able to avoid x-ray death of the cartilages and we were able to obtain cures in about fifty percent of these cases. One of these cases on whom I operated in 1940 was that of a woman,³ who had ericoid cancer. She is still well but has a cicatrical stenosis of the hypopharynx. She refuses to have this cicatrix broken up, preferring to go along with her gastrotomy tube. She had x-ray therapy in May 1940. Another typical case is that of a veterinarian,⁴ who had cancer of the false cord with positive glands in his neck. He had the cartilages removed and x-ray therapy to his neck in 1945. He has remained well and is actively engaged in the practice of veterinary medicine. In this case as of several others, the glands in his neck were impalpable and yet positive when examined microscopically. One case died three or four years later after having received x-ray therapy to the neck from metastases to the liver. Another case whose glands were impalpable but positive on microscopic examination, died several years later of a metastasis to the brain. In this connection it is well to keep in mind that generally speaking, individuals with red hair and sandy complexion do not do well with x-ray therapy. Neck

dissection with laryngectomy is the surest way of avoiding metastases. Here again, the early operation is likely to be more successful and, I repeat, it is my feeling that when possible, laryngectomy with neck dissection is the treatment of choice. Thus, it is evident that recurrence is unlikely and the patient is likely to live out his life expectancy. However, occasionally we obtain the most surprising results with x-ray therapy. We, therefore, have no reason to wash our hands of a case without having given the patient the advantage of x-ray therapy in inoperable cases.

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Treatment of Spontaneous Varicoceles

By LEANDER WILLIAM RIBA,
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Chicago, Illinois

A varicocele is an asymptomatic or distressing mass of veins within the scrotum and is found most frequently on the left side. There are

two distinct types: the spontaneous and the symptomatic. The spontaneous varicocele may be seen at any age and is by far the most common. This type is usually not associated with any co-existing pathology. The symptomatic varicocele is less common, more apt to be noted after the fourth decade and is secondary to

a primary retroperitoneal lesion or lesion at or near the kidney. Twelve percent of kidney tumors develop a secondary scrotal varicocele. This discussion will be limited to the diagnosis and treatment of spontaneous varicoceles.

Spontaneous Varicoceles

The majority of spontaneous varicoceles occur on the left side at any age and may be classified as mild, moderate, or severe. In many instances the varicocele is accompanied by a long redundant scrotum. They are present more frequently on the left side due to the right angle insertion of the left spermatic vein into the left renal, absence of venous valves, and the lower position of the left testis. The reported incidence has been given as from 5 to 18 percent; our observations noted an incidence of approximately 8 per cent.

Symptoms

The size and degree of a varicocele is no indicator of the magnitude of the symptoms. There may be none whatsoever. Only about one-third of the simple varicoceles develop sufficient symptoms to require examination and treatment. The most common complaint with a varicocele is some degree of scrotal or testicular pain or discomfort particularly after being up for long periods of time. These symptoms are always aggravated by an accompanying inguinal hernia. Sometimes patients complain of a low backache with radiation into the scrotum and testis. If a varicocele is complicated by chronic prostatovesiculitis, vasitis, and epididymitis the real origin of the symptoms may remain obscure. Sexual disturbances such as loss of libido, premature ejaculations, or scrotal formations may develop in some individuals. During adolescence severe physical exercise may provoke scrotal pain from venous varicocele congestion.

This trying lesion will again be

brought to the attention of Medical Officers as a result of our return to the induction of many young men into the services. The evaluation of this lesion becomes more difficult in the maladjusted, frustrated, psychoneurotic individual. Unstable service personnel may well use a varicocele to escape routine responsibilities and duties. Some men do not develop varicocele symptoms until the lesion has been brought to their attention by a medical examiner. Vigorous physical exercise, military training programs or strenuous front-line duties may re-inforce varicocele symptoms, especially if a hernia is developed or one already present becomes aggravated thereby. Many a male goes thru life with a varicocele which he did not know existed or which caused him no local symptoms. Others, however, have a varying degree of annoying symptoms for years which they accept only because they have been told that no definitive corrective measures are available.

Diagnosis

The diagnosis of a spontaneous varicocele is based on the history and physical findings. Now-a-days many males with a varicocele are aware of their condition and come in when symptoms develop or become aggravated. The lesion in a few instances has a hereditary varicosity diathesis such as "son like father." Varicosities of the extremities or varicosities of the scrotal wall do not, as a rule, accompany a varicocele. When examining a patient for a spontaneous varicocele he should be examined first standing up and then lying down. While standing the venous turgescence of the pampiniform plexus of the cord can be seen and palpated. This palpatory sensation has been described as "worms in a bag." In older patients these worms seem to have "more body." As a rule the varicocele veins

of testis are not tender to palpation. A softness and shrinkage of the testis as compared with its fellow should be carefully noted. Other pathology as a spermatocele, hydrocele, epididymitis or hernia have considerable significance. Occasionally mild or moderate thrombophlebitis is present. Neoplasms of the testis occurring in the presence of a varicocele can be easily missed unless all examiners remain tumor conscious. In the supine position the mass of veins recede and on palpation, only the empty thickened vessels are left, providing no co-existing lesion is present. A careful search should now be made for an accompanying impulse on coughing in the inguinal canal or relaxation of the internal inguinal ring. Ten to twenty per cent of varicoceles have an associated inguinal hernia. If the individual is middle aged, gives a short history of the condition, and the varicocele does not recede in the supine position we should be immediately on guard for a symptomatic varicocele. In these patients the varicocele is secondary to a primary lesion high in the corresponding retroperitoneal space or kidney blocking the dependent scrotal and testicular venus return.

Treatment

There is no routine treatment for a spontaneous varicocele. The indicated treatment depends a great deal upon the individual in question. In the young adult it has been said that as soon as the individual marries the symptoms will abate. The writer has noticed marital varicocele venous deturgescence in this group but never a disappearance of the lesion. The most common treatment recommended for symptomatic varicoceles is a scrotal support. It is surprising the relief which may be obtained by such a simple measure. The support is worn during the day and removed at night. The injection treatment of varicoceles with

sclerosing agents has never been enthusiastically received, because the results have been too uncertain. The majority of males with an asymptomatic varicocele need no therapy except an understanding of their lesion.

Approximately 50 per cent of the men who have symptomatic varicoceles continue to complain of residual symptoms after conservative measures have been tried. It is in this small group where we should exercise extreme care regarding our further management. Everyone of these individuals must be carefully studied, locally and generally. It should be ascertained whether or not the individual is stable and that the residual symptoms are not entirely psychogenic or psychosomatic. It should be remembered that even a psychoneurotic male may develop pathologic lesions. In the borderline patient protracted observation will usually give the best answer and correct final diagnosis.

When, after careful study, the varicocele remains symptomatic, surgery should be considered. The most common surgical technique now utilized and recommended is the low inguinal incision varicocelectomy. This operation has given satisfactory results but the amount of vein to be removed in every case remains uncertain. Removal of too many veins and cord tissue may result in testicular atrophy or orchialgia. Insufficient removal of the veins predisposes to recurrence. Marked disturbances of the cord circulation may incite a late hydrocele. The low incision does not allow exploration high in the canal for a hernia exploration. Some years ago I described scrotal amputations in the surgical treatment of varicoceles with symptoms. Many satisfactory results were obtained, but at least 15 per cent failures were noted. The newer concept of the surgical treatment of spontaneous varicoceles is

based on the restudy of the return inguinal venous drainage from the spermatic cord, testis, and scrotum. A restudy shows 2 anastomosing venous drainage systems, 1) primary or deep and 2) a secondary or superficial system. The deep system consists mainly of the internal spermatic vein, ductus deferens vein, and the external spermatic. The superficial system consists of the superficial and inferior epigastric veins, the superficial internal circumflex veins, and the scrotal tributaries of the superficial and deep external and internal pudendal branches. These superficial veins communicate with each other and connect with the external ring. It is through these connecting channels, following ligation and excision of the inguinal internal spermatic vein that the return venous drainage can be readily shunted into the external spermatic vein.

Ivanissevich was one of the first investigators to restudy the inguinal venous drainage. In 1918 he advised high ligation of the internal spermatic vein for the surgical treatment of varicoceles. Bernadi in 1942 published his superior end results following the excision of the inguinal spermatic vein in varicoceles. Many other surgeons and investigators have reported similar favorable results. Javert and Clark in 1944 published comparative results following the conventional varicocelectomy and the inguinal internal spermatic vein excision. They emphasized the presence of hernias in 25 per cent of the 145 patients which they treated for varicoceles. Their end results have been far superior to their results following standard varicocelectomies.

*Technique of Internal
Spermatic Vein Excision
For a Spontaneous Varicocele*

When surgical treatment of a varicocele is decided upon, hospitaliza-

tion for 3 to 7 days is recommended. The operation may be carried out under local, spinal, or intravenous sodium pentothal anaesthesia. A 5 to 7 cm incision is made over the internal inguinal ring parallel to the canal down to and including the external oblique fascia. The internal oblique muscle is now separated and the cord delivered into the wound. The success of this operation depends primarily upon hemostasis and preservation of anatomical landmarks. This operation cannot be properly carried out except in a dry field. The use of fine eye surgery instruments will greatly facilitate the careful dissection of the layers of the spermatic cord. In this region the cord is divided into 2 compartments. The anterior compartment contains the internal spermatic vein (single or multiple trunks). The cord now is carefully immobilized and the infundibuliform fascia incised longitudinally for 2 to 3 cm. The internal spermatic vein lies directly beneath this fascia and in the presence of a varicocele the vessel is markedly enlarged and easily identified. Care should be taken when the vein is dissected free because small tributaries can cause annoying hemorrhage. After the vein is mobilized about 3 cm are excised between two nonabsorbable sutures. After the excision, the proximal and distal sutures may be ligated thereby shortening the spermatic cord. The infundibuliform fascia is now closed transversely. The proximal cord is now inspected for a hernial sac. If a sac is present it should be freed, mobilized, and resected. The repair is identical to a standard indicated herniorrhaphy. The fascia of the internal oblique is sutured to Poupart's ligament and the remaining layers are approximated with silk or cotton sutures. The cord is not usually transplanted. The search for an accompanying hernia is important as their association has been reported

as occurring in 10 to 25 per cent of the patients.

Postoperative Treatment

Immediately after surgery we have used a scrotal support and an ice pack. The ice pack minimizes postoperative swelling and promotes vascular constriction. Patients are not kept in bed longer than 24 to 48 hours. The scrotal support is worn for 2 to 3 weeks. When the distal veins are injected with 5 per cent sodium morrhuate solution at the time of surgery, palpable venous fibrosis occurs and disappears after 8 to 12 weeks. When a hernial repair has been done at the time of the internal spermatic vein excision patient's are advised regarding their postoperative activities.

Discussion

All of our postoperative patients have shown a diminution in their varicoceles, but only 88 per cent of them have been relieved of their symptoms. All patients who had a hernia and a varicocele repair were markedly improved. One patient had had a recent herniotomy and the varicocele was left undisturbed. He was not relieved of his scrotal distress until the internal spermatic vein was resected.

We believe that the old varicocelelectomy operation should be discarded in favor of internal spermatic vein excision. The operation is simple and easily carried out. Resection of hernial sacs and abdominal repair cannot be accomplished with the usual low inguinal and scrotal incision. The incision should be carefully made over the internal ring and should not be carried below the external. A low incision can destroy the anastomosing branches linking the deep and superficial systems. A general surgeon should, during the course of a herniotomy, excise the internal spermatic vein when a varicocele co-exists. Likewise a urologic surgeon when operat-

ing upon a varicocele should look for and repair a co-existing inguinal hernia. In this way the postoperative results can materially improve.

All spontaneous varicoceles with symptoms have a trial at conservative treatment. Surgical indications in the psychoneurotic individual with a varicocele are not always clear. When varicocele symptoms persist after conservative measures have failed surgical correction should be considered. Age is no contraindication to surgical intervention, providing it is reasonably certain that the varicocele is causing symptoms and conservative methods have failed. When the testis is soft and shrinking in size due to venous stasis, surgery is indicated. Azoospermia status can result from an advanced varicocele. In such cases excision of the internal spermatic vein is advisable. Except for comely reasons, scrotal amputation in addition to internal spermatic vein excision is unnecessary. Great care should be exercised in differentiating a spontaneous varicocele from a secondary symptomatic one. A symptomatic secondary varicocele is not a surgical lesion. This varicocele will not recede in the supine position.

In the Armed Forces this lesion is always difficult to evaluate. After induction a hernia may develop or one already present becomes aggravated. As a rule a spontaneous varicocele existed before induction. In the service-eligible young men with a varicocele and symptoms preinduction correction would relieve the Medical Officers of many postinduction headaches.

Conclusions

- (1) A distressing spontaneous varicocele not relieved by conservative measures, should have surgical consideration and correction.
- (2) When surgery is not contraindicated excision of the internal

spermatic vein will relieve the varicocele symptoms in 88 per cent of the patients.

- (3) A hernia will aggravate the varicocele symptoms and its repair is essential and feasible at the time of the internal spermatic vein excision.
- (4) Extreme care should be exercised in differentiating between spontaneous and symptomatic varicoceles.

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The Significance of the Q Wave in the Electrocardiogram

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Introduction and definition: The Q wave consists of the initial downward deflection of the QRS triad which is the depolarization complex of the ventricular musculature. The normal Q wave is less than 25 percent of the associated R wave and is less than 0.03 second in duration. Q_3 should be 50 percent greater than the tallest R wave in the standard limb leads to be considered abnormal. A Q wave may normally be found in any lead.¹

Terminology and orientation: The standard limb leads, I, II, and III, or standard Einthoven limb leads are inscribed as the result of the algebraic summation of the potential between two limbs.

The augmented limb leads² are directly related to the standard limb leads but are recorded with the imposition of 5,000 ohms resistance to eliminate the skin resistance. aVR represents chiefly the potential variations of the right arm, aVL represents chiefly the potential variations of the left arm, and aVF represents, similarly, the left leg. VR, VL, VF are similar to the aV limb leads but are unaugmented and are of less voltage.

The chest leads V-leads, so-called unipolar leads) or exploring electrode leads are V_2 - V_7 on the left, and V_1 , V_2 R- V_7 R on the right as described and delineated by the American Heart Association.

The direction of the potential change in either lead depends primarily upon the surface of the septum and the portion of the ventricular faces. The electrocardiogram as inscribed has been so standardized

that the oncoming potential is recorded as a positive wave (R), and that traveling away from the electrode as negative (Q,S).

The electrical position of the heart is classifiable into six categories, i.e., vertical, semivertical, intermediate, horizontal, semi-horizontal and indeterminate on the basis of the patterns of aVL and aVF.³ The apical portion of the ventricle may vary greatly in position as a function of the shape of the thorax, posture, and the phase of respiration.⁴ As a consequence the pattern in aVL and aVF are normally subject to wide variations in QRS configuration. Inasmuch as the base of the heart is more fixed the pattern in aVR is more uniform.

The formulae for determining the electrical position of the heart are as follows:³

vertical: aVL resembles V_1 , aVF resembles V_6

semivertical: aVL is a small complex with a tiny s

intermediate: aVL resembles aVF

horizontal: aVL resembles V_6 , aVF resembles V_1

semihorizontal: aVF is a small complex with a tiny s

indeterminate: there is no obvious relationship

As will be discussed below, the electrical position, which does not always correlate with the anatomic position, is of marked importance in evaluating the significance of a Q wave. This is particularly true of aVF since the direction of the initial phase of the QRS complex is dependent upon the surface of the septum which faces downwards.

Patterns: The Q wave is used to describe certain diagnostic patterns. (A q is a tiny q wave, a Q is a large deflection).

Standard limb leads: The Q_1T_1 pattern of anterior wall myocardial infarction and the $Q_2T_2Q_3T_3$ pat-

tern of posterior wall infarction are well known. The interpretation of a Q_3 is difficult for lead III is the least reliable of the three methods used in evaluating posterior wall infarctions because of its bipolar derivation. A Q_3 will appear when the potential of the left leg is negative when compared to the left arm. An early positive deflection in aVL can produce a Q wave, which may be of significant amplitude, in lead III. A Q_3 may occur without a $QaVF$ when the potential in aVF is relatively negative to aVL.

The significance of a deep Q_3 as an aid to the diagnosis of a posterior wall infarction was established by Pardee in 1930.⁵ It is known that a significant Q wave in lead III (25 percent or more of the associated R wave, or highest R wave in the standard limb leads) may be seen in normal individuals. In addition a significant Q may be present in conditions other than myocardial infarction. Contrariwise a Q_3 may be absent or small and narrow in posterior wall infarctions. A Q_3 of a posterior wall myocardial infarction reflects the potential in the left leg lead which is transmitted from the posterior diaphragmatic surface of the left ventricle⁶

Esophageal leads at the ventricular level and the left leg lead (aVF) have been found to yield more consistent Q wave correlation in the evaluation of posterior wall infarcts than standard lead III.

The Q_3T_3 pattern may normally be seen in a horizontally placed heart (predominant positivity of the left arm) and the depth of the Q wave may decrease with deep inspiration which produces a more vertical heart. A S_1Q_3 or s_1q_3 pattern is frequently seen in normal vertical, semivertical and intermediate positioned hearts. Rotation of the heart or an anterior wall infarction may produce a $QaVL$ which may negate a Q_3 . Leads aVL and aVF

will frequently explain Q wave findings in lead III.

A Q_3 is usually present in a significant degree in right bundle branch block as a result of the aberrant excitation pathway. A significant Q_2 is such a pattern is strongly suggestive of an associated or superimposed posterior wall myocardial infarction.

Q waves are conspicuously absent in left bundle branch system block, while prominent Q waves may be seen in left heart strain and hypertrophy patterns. It is believed that the interventricular septum is activated from left to right; with a thickened septum and left ventricular wall the duration and potential of the activation current passing away from the exploring electrode, or left limb lead, inscribes a sizeable Q wave. Obviously in left bundle branch system block with a right to left pathway of activation, no Q is inscribed either in the limb leads or the chest leads. However, recent data suggest that slurred notched 0.04 second in duration Q waves, in leads facing the epicardial surface of the left ventricle in the presence of left bundle branch block are caused by focal block in the region of the infarcted ventricular muscle.⁷

Augmented limb leads; V precordial leads: A Q is normally inscribed in aVR and may normally be seen in aVL in a markedly vertical heart (the P and T waves are likewise inverted). aVL is extremely useful in diagnosing high lateral wall infarctions and may at times be the only conventional lead to give such evidence. Left heart strain may yield a significant QaVL in horizontal hearts and significant QaVF in vertical hearts. Significant Q waves may occur in aVF in normal individuals in the supine position. This Q wave decreases in the upright position as the heart becomes more vertical. A Q or QS aVF may

be inscribed in extremely horizontal hearts with left ventricular enlargement as is seen commonly in lead III, Q_3 or QS_3 , due to the predominant positivity of the left arm. It is felt that a Q aVF measuring 0.03 seconds or more in duration from onset to nadir and greater than 25-30 percent of the associated R, when the R wave is 7 mm or greater in height is strong but not positive evidence of infarction.⁸ A QS may be seen in aVL in a transmural posterolateral infarction when the heart is electrically vertical. It is important to remember that abnormal Q waves may or may not be inscribed depending upon whether the electrode faces the surface of damage and whether the potential of the surrounding and viable muscle can overshadow that of the infarction.

When a large infarct occurs which is transmural the dead muscle acts as a window and allows the easy transmission of the intracavitary potential activating the right ventricle to be portrayed as a deep Q wave as the potential is spreading away from the exploring electrode. Obviously whether the Q wave appears is a function of the electrode position, and such is the rationale for multiple leads. The depth of the Q wave may vary as the healing proceeds. However, the healed scar remains as a window effect and the inscription of the Q wave remains as permanent evidence of a prior infarction. This information applies to all the leads used.

Occasionally the left ventricular potential is not reflected to the left leg and is evident only in aVL and in high ventricular esophageal leads.

Abnormal Q waves may not appear in right ventricular infarction because leads which face the right ventricle also face the right surface of the interventricular septum and face the oncoming wave of depolarization.

Small narrow, less than 0.03 second in duration, q waves may be normally seen in $V_4 - V_6$ and represent septal activation. Deep late Q waves associated with S-T segments and inverted coved T waves in leads $V_1 - V_3$ are seen in anteroseptal myocardial infarction. Q waves are not seen in the V leads in posterior wall infarction.

*The esophageal electrocardiogram:*⁹ After the patient swallows the electrode, records taken at ventricular levels closely resemble those from the left chest leads. There is a transition zone near the A-V groove. At atrial levels an intrinsic deflection in the P wave, a deep broad Q wave, progressively smaller R and deeper S and inverted T waves appear. Immediately behind the auricles the P wave is of shorter duration, of greater complexity in configuration and of greater voltage in all its components. Auricular T waves are frequently seen, P is inverted and the QRS resembles aVR in leads from above the auricles.

A small p wave with deepest Q's associated with the tallest R waves are frequently seen at ventricular levels (maximum duration 0.03 sec, maximum depth 0.43 mv). The Q wave may be deeper and broader at the transition zone (maximum duration 0.06 second and 1.6 mv in depth). At auricular levels the Q is deep and wide and increases in depth and duration over the superiormost atrial segments.⁹

A Q wave at the ventricular level greater than 0.4mv is considered by some as diagnostic of posterior infarction, particularly if it is relatively large in proportion to the R wave.¹⁰ The diagnostic validity of this statement has been questioned.^{11,12} Multiple esophageal leads are as important as multiple precordial leads. Lower esophageal lead patterns are similar to aVF regardless of the size or configuration of the heart.¹³ The correlation of Q waves

between aVF and lower esophageal leads in posterior wall myocardial infarction has been shown to be excellent. It is generally accepted that aVF is more reliable than lead III but the esophageal leads are adjunct for the diagnosis and localization of infarctions of the left ventricular surface which lie posterior to and away from the diaphragmatic surface. Scherlis et al¹³ reported a few cases whose electrocardiograms revealed abnormal Q waves in VF in which similar tracings were obtained by multiple leads from lower esophageal levels, and no additional information was obtained to aid in the evaluation of the QVF. VF, and aVF are used in preference to the esophageal leads because of technical simplicity.

The interpretation of a Q wave in the infratrial esophageal leads, at the area of the transition between the atrial intrinsic deflection and where the ventricular cavity potential appears, in the absence of evidence of infarction in the standard limb leads, and the unipolar extremity leads or precordial leads, should be done with much caution. There is a distinct source of error in esophageal electrocardiography because the electrode explores only a small portion of the posterior and diaphragmatic surfaces of the heart.

Acute cor pulmonale: There are definitive changes in the standard limb leads involving primarily a Q_3 with occasional Q_2 patterns. Lead III reveals a Q_3T_3 pattern as in posterior myocardial infarction. The Q wave changes must be interpreted in the light of the entire QRS, S-T-T change. The S-T segment is usually shortened. These changes are believed to be due to a shift in the electrical axis incident to sudden right heart dilatation, and to a decrease in coronary flow incident to sudden right heart engorgement and the resultant decrease in coronary vein drainage.

The Q wave in the electrocardiogram of children: Q waves with variable depths are obtained in aVR and aVL. The Q or QS is deepest in aVR. In some cases in children five years of age or less a deep Q wave is seen in aVF. In these same cases a deep Q is also seen in limb leads II, and III. Q waves in aVL are usually insignificant.¹⁴

A Q is uncommon in V_1 - V_3 but is frequent in V_4 - V_6 .^{14, 15}

The Q is more prominent in younger than in older children. The deep Q waves in infants and children have been explained on the basis of the relatively thick ventricular septum and the peculiar position of the heart.¹⁴

Q-T interval: The Q-T interval, which represents the time required for depolarization and repolarization of the ventricular musculature (measured from the onset of the Q wave through the end of the T wave) is shortened in digitalis intoxication and hypercalcemia. The Q-T interval is prolonged in hypocalcemia (the S-T segment is prolonged), quinidine intoxication (the QRS is widened), hypokalemia (the QRS and T waves are widened), hyperkalemia (the QRS is widened) and active myocarditis.

Summary: A Q wave greater than 0.03 second in duration and greater than 25 percent of the accompanying R wave is abnormal. The significance of the Q wave may be altered by the electrical and anatomic position of the heart. The aV and V limb leads assist in determining the electrical position of the heart. aVL and aVF (VL and VF) and the esophageal leads are of great help in detecting and localizing myocardial infarcts. Alteration in the Q-T interval occurs in biochemical abnormalities.

The depth and duration of the Q wave should not be used alone in interpreting electrocardiographic changes but should be evaluated in

conjunction with the clinical history, the height of the accompanying R wave, the S-T deviations, the T wave alterations, serial electrocardiograms, and in the light of the above information. There are instances in which no definite electrocardiographic interpretation can be given using all of the above criteria.

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Acute Dento-Alveolar Abscess

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Dento-alveolar abscesses usually develop as a consequence of pulp infection. Degenerative pulp changes regularly occur as a result of wearing, erosion, or traumatic or chemical injury to the teeth.

At onset of the symptoms of pulp affection, the patient complains of pain which frequently seems to come from teeth far removed from the site which is actually affected. Pain may be referred to any branch of the trigeminal nerve or any of the anastomosing nerves. When infection of the dental pulp becomes generalized, a reaction takes place in the periodontal membrane in the region of the apical opening of the root of the tooth. From this point on the progress of the disease may take either a chronic or fulminating course.

In acute cases, the soft tissue breaks down and the alveolar bone becomes involved. The patient complains of a constant pulsating pain and the affected tooth becomes slightly movable and is tender to pressure. The infection spreads following the paths of least resistance. The adjoining marrow spaces are involved first and as the trabeculae are destroyed, a large abscess forms in the jaw. If the tooth is not removed at this time, inflammation spreads peripherally until the cortex is affected; neighboring teeth may become involved and the regional lymph nodes become enlarged and tender.

Swelling of the Face

At this point swelling of the face becomes obvious. Abscesses of the upper posterior teeth cause swelling of the cheek which obliterates the nasolabial sulcus. Frequently the eye

on the affected side may be closed on account of the edema extending into the lid. If the infection perforates the labial aspects of the bone of the upper jaw, the upper lip becomes grotesquely enlarged.

If the lower posterior teeth are involved, abscess usually forms in the distal part of the submaxillary region. The swelling frequently extends over the cheek and neck, obliterating the angle and inferior border of the mandible on the affected side. In case of infection of the anterior teeth, swelling is more regional.

The acute local reaction of alveolar abscess is usually associated with a marked rise in temperature and chills. The patient may also suffer from headaches, malaise, and general prostration. If the infection spreads in the subcutaneous tissue and forms hard, widespread involvement of face and neck, the condition is spoken of as a cellulitis and this type of swelling is almost diagnostic of a streptococcic infection which may terminate in Ludwig's angina. Osteomyelitis may also result if local resistance breaks down. This local infection may even result in a fatal general infection.

Fatal complications have been reported as occurring from metastasis causing meningitis or thrombosis of the cavernous sinuses, from acute septicemia with or without endocarditis, chronic septicemia with degenerative processes in the internal organs, or prolonged septicemia with abscesses.

Treatment

The treatment for purulent dento-alveolar abscesses (localized) is drainage. This may be established by drilling a canal into the pulp chamber with a dental bur or by incision drainage.

In acute alveolar abscesses cold

applied to the face is preferable. Heat without drainage is responsible for diffuse swelling. Thomas¹ states: "Heat without drainage is often the cause of osteomyelitis." In the case of fulminating infections the use of the antibiotics locally has revolutionized methods of treatment.

In an article entitled, "The Practical Application of Regional Penicillin with Local Anesthesia in Dentistry" which appeared in *The New York State Dental Journal*, Blumenthal and Catania² reviewed the medical literature and also gave the results of their experience, covering 15,000 cases. The original purpose of Blumenthal and Catania was to evolve a painless method of local injection of penicillin as a therapeutic agent. It immediately became apparent that the combination served a greater purpose—a safe local anesthetic for use in the presence of inflammation and swelling.

In their first experiments, these investigators tried combinations of "the amorphous sodium and calcium penicillin, and crystalline sodium and potassium penicillin with procaine and Monocaine hydrochloride (butethamine hydrochloride)."

They state: "The results obtained with procaine were unsatisfactory since a flocculent or cloudy precipitate invariably formed. When this occurred the anesthetic properties of the procaine were lost. Furthermore, this precipitate made administration difficult because it could not readily pass through the lumen of the needle.

"This phenomenon was not understood at first, but after much inquiry and consultation with chemical research workers this precipitate was identified as a new salt of penicillin known as procaine penicillinate. It is explained in this fashion: The procaine hydrochloride forms a chemical combination with penicillin which precipitates out of solution as a flocculent compound of pro-

caine penicillinate. In addition, the unprecipitated portion, if any, will lose most of its anesthetic properties because it may be converted from a hydrochloride salt to a basic procaine compound. Lovested, in his study, found that a metycain and penicillin combination also precipitated.*

"Monocaine, on the other hand, produced a clear solution and remained that way indefinitely. Monocaine-epinephrine solution was injected into a vial of crystalline penicillin, was thoroughly mixed, then aspirated ready for use. Later, an aspirating syringe and cartridge were developed for this purpose. This permitted the preparation in a single step without necessitating the withdrawal and re-insertion of the needle, and also eliminated the probability of contamination."

Technic of injection as developed by Blumenthal and Catania is as follows:

When the penicillin-Monocaine solution has been prepared as previously described, the injection is made outside the involved area and the needle is directed toward the center of the infected site, and a small quantity is deposited. This is repeated several times around the affected part so that it will be circumscribed as far as possible. This technic was primarily based on the work of Rose and Hurwitz who state: "The rationale of this approach lies in an attempt to augment and reinforce the barrier that body tissues set up to localize the spread of infection. Injection outside of and through the natural barrier to the center of the infection thus aids the body reaction not only in preventing spread of infection but also in combating the infected tissue."

"Block and infiltration injections are made in the usual manner. This combination has practically eliminated post-extraction infections. The

circumscribed or 'wheel' technic is also employed extra-orally.

"Asepsis during the preparation and injection must be strictly observed."

This method of treatment has produced no ill-effects and the conclusion that injection in the presence of infection is a dangerous procedure may be disregarded. If localization occurs after remission of acute

*Author's note: Crystalline sodium penicillin will not precipitate when Monocaine is used as the solvent.

symptoms, treatment indicated is either incision and drainage or extraction of the offending tooth.

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The Local and Systemic Effects of Heat

In the Treatment of Arthritis and Neuromuscular Diseases

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Review of the Literature

Regardless of the medication used for the correction of disturbed physiologic functions, relief of pain, or arrest of the arthritic process, Krusen(1) believes that one of the most important phases of the battle against arthritis lies in (a) more extensive use of physical therapeutic measures.

The Handbook of Physical Medicine and Rehabilitation of the American Medical Association is replete with proof of the therapeutic value of various forms of physical medicine for virtually every medical and surgical specialty. But the importance of continuing the needed physical therapy after the stay in the hospital or between office visits is

often forgotten. Krusen,(1) in his excellent book *Physical Therapy in Arthritis*, stresses this important fact, and states that at the Mayo Clinic he has been particularly impressed by the necessity for careful training of arthritic patients and their families in a routine for prolonged and adequate home treatment following the period of institutional care, or even in the absence of any institutional treatment. The limited number of skilled physical therapy technicians makes it almost imperative that instructions in home treatment be provided. Frequently the condition of arthritic patients who have been much benefited by a course of institutional treatment promptly relapses on their returning home.

Recognizing the fact that it is inconvenient, and often unsafe to apply the needed therapeutic agents in the home with the generally available complicated equipment, Krusen has prepared special instructions for the

use of physical therapy measures in the home and has devised simple, safe equipment to be used by his patients after they leave the Mayo Clinic. Many other rheumatologists and physiatrists 2-3 also have emphasized the importance of home physical therapy measures. With the lack of convenient home appliances, it is not surprising, says Coulter (4) that simple drugs should be so extensively prescribed for use in the home, whilst physical methods are rarely advocated by the medical man, although they are often of great service.

Piersol (5) says that it is the consensus of rheumatologists that, regardless of any other form of treatment employed in the regimen of the chronic arthritic, physical medicine plays an important role and must be regarded as an indispensable adjunct in the care of the majority of arthritics, particularly those who have reached the subacute and chronic states of the disease.

Friends or members of the patient's family can be taught to supervise corrective exercises, give massage or even to safely use simple physical therapeutic appliances in the home. Probably the greatest need, besides exercise and massage, is the effective use of heat. Heat not only relieves painful muscle spasm, increases the blood supply to the part and lessens discomfort, but if properly used has definite beneficial systemic effects.

The Council on Physical Medicine and Rehabilitation of the American Medical Association reported, "It is believed that artificial hyperthermia induced by physical means exerts an effective mobilization of body defenses against disease." (6)

Effects of Heat Therapy on Blood Cell. The rate of locomotion of leucocytes is increased by elevation of temperature, the highest rate occurring at 104 F. (7) Hargraves and Doan observed that there was a post-febrile leucocytosis which reached

about 40,000 leucocytes per cc. of blood several hours after the cessation of fever. (8) Krusen reported that hyperpyrexia 104-106.8 F. also increased the number of leucocytes from 7,125 to 11,269 per cubic millimeter of blood. (9)

Effect on Cardiovascular System. The heart rate is increased about 10 beats per minute for each degree F. rise in body temperature. Although external heat usually lowers the blood pressure, there is considerable variation in the effects as reported by various investigators. (10, 11)

Heat dilates the cutaneous vessels through the direct stimulation of the sensory cutaneous nerve endings and by the warmed blood activating the heat-regulating centers in the hypothalamus to effect greater heat loss through generalized cutaneous vasodilation. Heat also exerts a chemical effect on the small vessels throughout the body, increasing their size and opening up capillaries which were not patent before treatment.

Respiration. Hot baths, when sufficient to cause elevation of body temperature, increase metabolism and tend to lower the threshold of the respiratory center, and increase the rate and depth of respiration. The resulting hyperpnea may increase the elimination of carbon dioxide with the development of a definite alkalosis.

Basal Metabolism. Hyperpyrexia increases basal metabolic rate 5 per cent for each degree rise in body temperature.

Sweat Secretion. It is known that the skin plays the most important role, next to the kidneys, in the elimination of water, salts and nitrogenous waste products. (12) This well-known fact is utilized in clinical medicine to lessen the burden on the kidneys in renal dysfunction especially when accompanied by oedema by promoting diaphoresis to

crease the loss of water, salts and nitrogenous wastes.

In spite of the overwhelming proof of the efficacy of heat and the need for its use routinely in the therapeutic management of many organic and functional disturbances, the use of effective heat appliances in the home are all too rarely recommended by the physician. "Heat lamps" are now the vogue but when the involvement is generalized or when several areas are affected, the use of localized heat units are impractical and often unsafe. We must also not lose sight of the many beneficial systemic effects which result from the judicious use of general application of moist heat.

Clinical Study of Howard Heat

During the past year the author and his associates have used a convenient, relatively simple cabinet for the application of moist heat to the general body surface of patients with arthritis, neuritis, fibrositis, myositis, bursitis, peripheral vascular disturbances, cerebral palsy, paralysis agitans (Parkinson's Disease), obesity, psychiatric disturbances, menopausal syndrome and stiffness and discomfort following excessive exercise.

Scope of Study. In order to determine the safety and efficacy of this heat cabinet, careful observations were made on 62 patients ranging in age from 10 to 67 years. After a diagnosis was made and the necessary medication prescribed for the correction of systemic disturbances, the physical therapy regimen was outlined. Office treatment was given either by a physiatrist or physical therapist. When hyperthermia was indicated the Howard Cabinet was used.

Description of Howard Cabinet. The Howard Cabinet is comfortable, self-operating and automatic. The cabinet compartment contains no lights or wires and its completely waterproof. The infra-red heating

element and Sirocco blower are fully protected and by a patented process cause infra-red moist heat to circulate over the entire body.

Very simple to operate, the Howard Cabinet requires only filling of a small water container located under the seat, and plugging into an ordinary 110 volt A. C. wall outlet. The cabinet is completely heated in 3 to 10 minutes. A long reinforced zipper, which can be controlled from inside or out, runs diagonally across the entire length of the front of the cabinet permitting easy entrance and exit. Convenient flap openings allow use of hands for control of switches, reading, etc. An automatic time clock is located on the back of the cabinet and a switch for controlling the heating current is accessible through the armholes on the front.

The Howard Cabinet is 48 inches in length, 25 inches wide and weighs 100 pounds. It is easily rolled on movable gliders and can be operated in any place in which A.C. current is available.

Procedure. Pulse, respiration, oral temperature and general condition were observed (a) before treatment, (b) at the end of treatment, and (c) 15 or 30 minutes after the patient came out of the cabinet.

The duration of the treatment was limited to 10 minutes during the early phase of the study, but was increased to 20 or 30 minutes in the later phases of the investigation. Visible sweating usually started in about 8 to 10 minutes, when the cabinet temperature ranged from 40° to 50° C. Many patients did not obtain maximal benefit until after being in the cabinet for 20 or 30 minutes. Most patients felt comfortable when the cabinet temperature reached 45° C. and many seemed to get the greatest amount of relaxation, diaphoresis, and relief of pain when the cabinet temperature reached 50° C.

The number and frequency of the

treatments varied with the patient's condition, the response, duration of beneficial effects and the ability and convenience of the patient to come to the office for treatment. In most instances the patient received one or two treatments weekly for periods of one to thirty-seven weeks. Even after the pain had disappeared, some of the patients continued to take treatments "Because it makes me feel so much more comfortable and looser."

RESULTS. Pulse—In every patient, after every treatment, the pulse rate was increased—5 to 53 per cent, varying with the temperature of the cabinet, temperature of the patient and duration of treatment. In a few instances, when the patient fell asleep during the treatment, the pulse rate did not rise to as high a level as when awake. In some patients during the first exposure in the cabinet, the pulse rate increased to a higher degree than in subsequent exposures. After the treatment the pulse rate gradually approached the pre-treatment level.

Respiration. The respiratory rate increased from 0 to 42 per cent with no apparent direct relationship to either the body temperature or pulse rate, the respiratory rate sometimes increasing to a greater and sometimes lesser degree proportionately than the pulse rate.

Blood Pressure. In every patient, exposure in the cabinet for 10 minutes or longer caused a fall in both systolic and diastolic blood pressure during treatment. In some hypotensive patients there was a tendency toward higher levels (both systolic and diastolic) after the treatment, while in hypertensive patients the systolic and diastolic pressures were decreased during treatment and in many instances remained below the pre-treatment level for more than the hour observation period.

Body Temperature. Short treat-

ments (10 minutes or less) with the cabinet temperature ranging 40° to 45° C. had little effect on the body temperature. Longer exposures to temperatures of 45° to 50° C. caused hyperpyrexia with the body temperature reaching about 101° and rarely as high as 103°. Even with these high temperatures, there were no symptoms of distress or discomfort. The patients were relaxed and after a short "cooling off" period they stated that they felt refreshed.

General Well-Being. All patients stated that they were relaxed and more comfortable after the treatment. Muscle spasm was overcome except in the cerebral palsy patient. Both passive and active exercise was carried out with greater ease, and range of motion was increased. There was an increased sense of well-being.

Some patients were given hyperthermia treatments three times weekly while many obtained relief and benefit from one treatment each week. The condition of the patient between treatments determined the frequency of exposures.

After the first treatment, the patient was taught to prepare and use the Howard cabinet unaided.

After exposure in the heat cabinet, supervised exercises, manipulation and massage were carried out during the gradual "cooling off" period. When indicated, the patient was then given further treatment with microtherm, infra-red or ionic transfer of histamine over localized involved areas.

Summary. The purpose of this paper is to emphasize that in the management of patients with arthritis, or other rheumatic or neuromuscular disturbances the well-planned therapeutic regimen should include complete systemic rehabilitation, correction of metabolic or functional disturbances, optimal nutrition with increased supply of vi-

tamins, minerals, and proteins, anti-rheumatic medication, and a complete physical medicine program.

Special attention is directed to the need for continuation of physical therapeutic measures at home, between office visits.

A heat cabinet is described which is a convenient, effective means of supplying moist heat to the body and is sufficiently safe and simple to operate to permit its use in the home.

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A Brief Differential Diagnosis of Stomach Disorders

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When a patient presents himself with the symptoms of "gastric indigestion," e.g. gastric discomfort, sense of fullness or pressure after eating, flatulent distension of the stomach, eructations, heartburn, gas-ralgia, nausea, vomiting, anorexia or capricious appetite, perhaps a coated tongue and fetid breath, perhaps constipation, headaches, dizziness, palpitations, lassitude, mental depression, insomnia etc., the physician should first endeavor to ascertain whether the disturbance is functional or organic, bearing in mind that a goodly portion may be functional but that the greater number are organic in origin.

Most cases of stomach disorders are self inflicted e.g. irregular eating

habits, overeating (obesity), eating the wrong food (highly seasoned), nervous tension and anorexia. Even where a proper diet is maintained the capricious appetite of the individual may cause malnutrition.

Achlorhydria may impair the absorption of ascorbic acid and of thiamine. Because of its particular prevalence in elderly people, achlorhydria always should be suspected in unexplained malnutrition and malnutrition should be looked for in every patient having achlorhydria.

The role of bile salts in the absorption of the fat soluble vitamins particularly K, is so well known that it need only be mentioned. Alcohol interferes with the absorption of vitamin B and the constant ingestion of liquid petrolatum daily by many people whose sole complaint is constipation interferes with the absorption of carotene or vitamin A.

The role of increased excretion of

vitamins in the production of malnutrition has received little attention, although the production of hypoproteinemia by albuminuria and salt depletion either by excessive sweating or polyuria are well known phenomena. Cowgill¹ has shown that vitamin B deficiency symptoms appear earlier in dogs maintained with a forced water intake than in dogs that were permitted to drink water ad libitum. He attributed this to increased excretion of vitamin B₁. The possibility of "washing out" the water-soluble vitamins must therefore be considered in a great number of disorders.

Fluoroscopy, X-ray and the gastroscope are by far the best diagnostic weapons at our disposal today. These three are indispensable in detecting abnormalities of position, shape, structure and motor functions of the stomach. Percussion to determine the size of the stomach rarely yields reliable results. Inspection and auscultation provide diagnostic information in advanced cases of gastric dilatation due to pyloric or duodenal obstruction. Such cases with visible and palpable distension and peristalsis of the stomach are seen only exceptionally, and need not be seen at all today, since diagnosis of obstruction is feasible long before. Palpation, however must be done in every case of gastric distress. A mass the size of which is no criterion for its operability may be disclosed. The value of palpation and of gastric analysis as tools of diagnosis follow close on the heels of fluoroscopy, X-ray and the gastroscope.

Roentgen examination may reveal an abnormal or unusual position and shape of the stomach. In some we find a long ptotic "fish hook" type and in others just as normal an oblique "steerhorn" shaped stomach quite above the umbilical level. The latter is found usually in a stocky, lateral, obese individual. The former in a person of longitudinal type and

asthenic constitution. It is different if part of the stomach is found to be situated above the diaphragm. Such a diaphragmatic hernia may be of traumatic origin. Much more frequently it develops without trauma at any age or may be congenital.

Such a diaphragmatic hernia may be mistaken for various abdominal diseases. Dysphagia is commonly complained of but many such patients have no complaint and the diagnosis is made by casual X-ray examination.

Diaphragmatic hernia must not be confused with "eventration of the diaphragm" which is an abnormal elevation of the diaphragm due to its congenital hypoplasia and weakness. It is rare and almost always affecting the left side of the diaphragm. The heart is then pushed to the right.³

Extragastric tumors or considerable enlargement of adjacent organs such as the spleen or pancreas can cause displacement of stomach. The same is true of tumors such as sarcomas or renal or adrenal growths. Enlarged lymph nodes or a distended gall bladder may cause indentation of the duodenum.

While a characteristic niche is typical of peptic ulcer, a diverticulum of the stomach can easily be confused with it or a cancer crater. Quite often gastroscopy is necessary to differentiate even after the most skillful Roentgen examination.

It is not uncommon to find a small esophageal hiatus hernia and fail to lacerate it on a subsequent examination. This type of intermittent hiatus hernia appears to be due not to pressure from below, but to traction from above by an esophagus shortened in response to a vago-vagal reflex initiated by some stimulus from the upper abdominal viscera, especially from a diseased gall bladder⁴. The Vagus nerve has been shown to contract and shorten the longitudinal fibers of the distal portion of the esophagus.

Peptic ulcer is a common, chronic, recurring condition in which there is ulceration of the mucosa of the stomach or duodenum or, rarely, of the lower end of the esophagus or Meckel's diverticulum. It occurs usually in early or middle adult life, is often accompanied by indigestion and hemorrhage, and may result in pyloric stenosis or perforation. Gastric acidity is high in the vast majority of cases; in fact, the finding of low gastric acidity casts considerable doubt upon the diagnosis of peptic ulcer.

Duodenal ulcer is three to four times more common in men than in women, whereas gastric ulcer occurs slightly more often in women. The first portion of the duodenum and the lesser curvature of the stomach near the pylorus are the most common sites. The cause of peptic ulcer is not entirely agreed upon, but there is considerable evidence that, in most cases at least, the principle immediate factor is emotional, the ulcer tending to occur and recur at times of nervous and emotional strain.

A high percentage of ulcer patients complain of indigestion, but a few do not. Most peptic ulcer patients bleed at some time or other, and about one in four have obvious clinical evidence of hemorrhage. The bleeding may be sudden and profuse with resulting shock, or repeated small hemorrhages may cause iron-deficiency anemia. The blood may be vomited, but tarry stools may be the first evidence of hemorrhage. In a few patients severe hemorrhage may be the first symptom of the disease. An increase in blood non-protein nitrogen follows hemorrhage into the gastro-intestinal tract.

In about 10% of ulcer patients, stenosis of the pylorus or first portions of the duodenum develops as a result of scarring or inflammatory reaction. Accumulation of food and gastric secretions may result,

with eventual vomiting of large amounts of food residues. Food eaten several days before may be recognized by the patient.

The efforts of a distended stomach to force the accumulated food through the obstruction may result in peristaltic waves which may be seen moving slowly across the epigastrium from left to right. This sign is characteristic of pyloric obstruction but is present only relatively early in the process, before the stomach loses its tone. X-ray examination confirms the diagnosis of obstruction and reveals its degree and the amount of dilatation of the stomach. Evidence of complete obstruction may at times be misleading, for the edema of an acute inflammatory process may cause a narrowed orifice to close completely for a time. If vomiting is long continued, dehydrations and later alkalosis and nitrogen retention occur.

Perforation of a peptic ulcer is a very serious complication. When there is perforation into the peritoneal cavity, intense generalized abdominal pain, extreme tenderness, rigidity of the abdominal wall, and signs of shock develop rapidly. As an aid in differential diagnosis, the x-ray may show free gas in the peritoneal cavity. If the perforation is sealed off by inflammatory tissue, only localized pain and tenderness may be evident. Perforation may occur at any time during the course of peptic ulcer and it may be the first symptom of the disease.

Except in perforation, x-ray or gastroscopic examination is necessary before the diagnosis of peptic ulcer can be considered as established.

It stands to reason that foreign bodies such as dentures, coins or bones can be seen on roentgenograms. The rare bezoars composed of hair (trichobezoar), skin or fibers of fruits or vegetables (phytobezoar)

are seen as freely movable intra-gastric filling defects.

Gastroscoy should not be used indiscriminately, but should not be omitted where it may confirm or disprove the indication of a life saving operation. This is the case in the differential diagnosis between a benign peptic ulcer and gastric carcinoma. If the gastroscopist can get a satisfactory view of the gastric lesion, his contribution to the differential diagnosis may outweigh other

diagnostic methods and considerations in doubtful cases.

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CASE PRESENTATIONS

Bronze Diabetes (Hemochromatosis)

Bronze Diabetes (Hemochromatosis)

Case of a patient 55 years of age. His father died at 72 from an unknown cause; his mother died at 70, allegedly from stomach ulcers. His only brother died at the age of 55 from heart disease and his only sister died from hypertension at the age of 70. The patient does not recall any serious diseases in the past. He had a tonsillectomy at the age of 20. His occupation is railroad conductor. Accidentally, three months before admission to the hospital, which took place in January, 1951, diabetes mellitus was discovered. He has been taking insulin, 15 to 60 units daily, but was never told about a dietary regimen. He did not remain under medical supervision. He does not think "that the insulin has helped him." On admission he was 6'1" tall and weighed 181 pounds. His blood pressure was 130/80, his temperature 97, his pulse rate 90 and his respiration 18 per minute. He did not appear acutely ill. His skin had normal color. The internal organs and the nervous system did not show any pathology. The urinalysis of the straw colored, cloudy speci-

men showed a pH of 5; albumin was negative; sugar, 4 plus. There were 3 to 4 WBC, 3 to 4 uric acid crystals and 2 to 3 epithelial cells per hpf. The blood showed 14 gm (85%) of hemoglobin, 4.7 million erythrocytes and 8,400 leukocytes per cubic millimeter. The differential count showed 51 polymorphonuclears, 20% lymphocytes, 19% eosinophiles, 1% basophiles and 9% monocytes. The Kahn reaction was negative. The various fasting blood sugar determinations were as follows: on January 17, 1951, 271 mg %; January 20, 1951, 292 mg %; January 26, 1951, 270 mg %; January 31, 1951, 256 mg %. The x-ray picture of the chest showed no evidence of lung pathology, and the heart was within normal limits. A diagnosis of diabetes mellitus was made and the patient was put on 60 units of NPH insulin daily and on a diabetic diet. He was dismissed into the care of the family physician for future adjustment of insulin dosage and adequate control of the diabetic condition. Follow up studies of this patient showed that he had developed within a short time after dismissal from the hospital a cirrhosis of the liver and a hemochromatosis. The discoloration of the skin had been discovered shortly after dismissal from

the hospital while the cirrhosis of the liver was diagnosed two months before his death. Death occurred on June 18, 1951 from esophageal hemorrhage due to ruptured esophageal varices.

It was emphasized at the Staff conference that the syndrome of Bronze Diabetes is still rare. R. Boulon (*Presse med.*, Paris, 53:525, June 16, 1945) found only 70 cases (1.66%) among 4,266 persons with diabetes mellitus. This French author emphasized that Bronze Diabetes deviates considerably from diabetes mellitus. It is distinguished by its association with hepatopancreatic sclerosiderosis, the absence of any hereditary characteristics and by progressive diabetes which may require increasing doses of insulin; even insulin resistance may develop. One physician stated that in discrepancy with the French author, R. D. Lawrence (*Lancet*, 1:736, April 30, 1949) described the familial occurrence of Bronze Diabetes. Ch. Ihesner (*J. Lab. & Clin. Med.*, 31:1029, 1946), J. H. Sheldon (Oxford Univ. Press, London, 1935) and A. V. Frisch (*Wien. Arch. Univ. Med.* 4:149, 1922) also had described accumulation of cases in families. It also was pointed out that Wm. A. Wolfe and J. H. Crampton (*Bulletin of the Mason Clinic*, 4:118, Dec. 1950)

stressed that the disease is due to the absorption of excessive amounts of iron with deposition of iron pigments in various organs with resultant progressive fibrosis. Organs of predilection are liver, spleen, pancreas, striate muscle and skin. The diagnosis may be confirmed by a reliable laboratory test, namely serum iron and iron binding capacity. These authors recommend as treatment a long series of venesections. J. C. Doane, et al. (*Journal Am. Med. Assn.*, 10:926 July 7, 1951) however, stated that because of the liver cirrhosis, high carbohydrate diet would be indicated and that because of the diabetes, carbohydrate restriction would be necessary which makes the treatment a very difficult problem.

The staff agreed that the case which was presented here was unusual in the one respect that generally pigmentation of the skin is an early symptom while it came to the fore here only after a severe diabetes mellitus was diagnosed and only a few months before death. Furthermore, according to a number of authors, such as Lawrence and Boulon, the course of the disease is slow and may last from 10 to 15 years, while in this case the course was rapid and ended fatally within about nine months.

NOTES on MEDICAL STATISTICS

BUSINESS EXECUTIVES

The "Life Extension Examiners" quote the following statistics: of 10,000 business men with an average age of 45.6 years, only 22.2 percent were considered in perfect health; "Advertising Age" found that executives who died in 1950 averaged 57¼ years, which is ten years below the expected life span. At the Michael Reese Hospital in Chicago, in an examination of 55 executives under age 50, it was found that only 5.4 per cent were free of organic disorders. Obesity, hypertension, heart ailments and fatigue were the leading pathological findings. (*The R. & R. Magazine*, 7:14, July 1951).

DIAGNOSTIC SUGGESTIONS

Congenital Cysts of the Dorsum of the Nose

The differential diagnosis of dermoid cysts of the nasal dorsum has to take into account: meningoceles, which, however, are more translucent than the rather opaque dermoid cyst, and which also may show pulsation; encephaloceles, which are rare and usually project into the nasal cavity through the cribiform plate; inclusion cysts follow trauma; sebaceous cysts are rare in childhood while dermoid cysts prevail in infancy and childhood—in sebaceous cysts the overlying skin is usually attached to the cyst while dermoid cysts are frequently covered by freely movable skin; furthermore, sebaceous cysts are movable within the skin, dermoid cysts are generally attached to the underlying tissues. Dermoid cysts are present usually since birth or early infancy. (R. G. Randall. *J. of the Iowa State Med. Soc.*, 41:257, July 1951).

Bronchial Carcinoma

Careful statistics showed a significant higher incidence of heavy smokers among patients with bronchial carcinoma as compared with patients with other malignancies or without cancers, the control group having the identical age distribution. Most cigarette smokers in the bronchial carcinoma group admitted to inhale the smoke. Among 605 patients with bronchial carcinoma 96.1% had smoked for at least 20 years. Another statistic evidences that after age 45 the risk of developing bronchial carcinoma in persons who smoke is 50 times greater than the risk in non-smokers. (O. Gsell. *Schweiz. med. Wchnscher.* 81:662, July 14, 1951).

Perforation of Esophagus

The syndrome of rupture of the esophagus shows a rather characteristic pattern. It occurs in apparently healthy persons—84% males—often heavy eaters and not rarely chronic users of alcoholic drinks; the first symptoms are vomiting after eating with excruciating pain usually felt as epigastric or subcostal, extending to the left side of the back, followed by collapse, shock, dyspnea and cyanosis. Vomiting frequently stops after the pain sets in. Emphysema at the base of the neck is observed early in approximately 60% of cases, yet it may appear later or not at all. The severe pain is refractory to even large doses of morphine. Instead of vomiting, there may be retching, or the rupture may take place without any gastrointestinal symptoms. There is seldom free bleeding. The vomited material looks like coffee ground, containing occasionally mucus and small amount of blood. The pulse is fast and weak, the temperature below normal, there may be hypertension and hyperpnea. If the trachea is palpable it may show deviation to the right from the midline. The percussion does not always give reliable clues; it may be hypersonant. Almost in all cases there is dulness at the base of the thorax, particularly on the left. The heart and the mediastinal organs may be shifted, the heart sounds may be distant, and a pneumothorax may cause loss of the normal substernal dulness. X-ray may confirm the diagnosis; aspiration and examination of the pleural cavity fluid also may be helpful. (Th. J. Kissella. *Americ. Surg.*, 17:584, July 1951.)

Dermatomyositis

Dermatomyositis is a rare syndrome, whose cause is unknown. The diagnosis has been made in a series of cases in which there were present inflammation and degeneration of the skin and muscles, accompanied by severe prostration and frequently resulting in death, particularly in children and young adults. The main signs and symptoms as tabulated by the authors were: Swollen eyelids or rash on face; muscular fatigue or weakness; aching, stiff muscles; rash on hand, then face; sore swollen hands; sensitive skin; exfoliative dermatitis. The authors stress that a search for malignant tumor (bilateral ovarian adenocarcinomas were found in the reported case) focal infection, and endocrine disturbances should be made in every case. (Charles Sheard, Jr. Arch. Int. Med. 5:640, November 1951).

Stein Syndrome

This syndrome which as leading signs shows a male type of hirsutism and amenorrhea, and secondarily obesity and inhibition of breast growth, is endocrine in origin and frequently caused by polycystic ovaries, bilaterally. As bilateral cysts in the ovaries develop over a rather considerable period of time, these patients have a history of normal menstruation; at a certain time the period become irregular and may finally stop altogether; sterility is a consequence. Endocrine treatment (estrogen or progesterone) is of no avail; the best results have been accomplished by wedge resection of the ovaries. (M. L. Leventhal and M. R. Cohen. Am. J. Obstet. and Gynecol., 61:1034, 1951).

Paget-Schroetter Syndrome

The Paget-Schroetter syndrome is consistent with a symptomatology of

a neurovascular disease of the arm; the prevalent lesion is obstruction of the axillary artery. The anatomical elements involved are the motor, sensory, and autonomic parts of the brachial plexus, the axillary artery and the axillary vein. The syndrome occurs most frequently in males between 40 and 50 years of age. Signs and symptoms are: shoulder pain (deltoid); palpable cord in axillary region; swelling of arm, increasing on effort or dependency; distended superficial veins of arm and pectoral region; discoloration of arm (paleness, cyanotic, mottling, redness—increased on effort or dependency); occurrence of majority of cases in right arm of males; history of uncommon motion at the shoulder joint; absence of constitutional symptoms. (M. J. Wilson and M. E. Silverstein. Arch. Int. Med. 4:507, October 1951)

Struma Lymphomatosa—Hashimoto's Struma

This syndrome is primarily found in women in the menopausal age group. "The development of a rubbery-firm goiter in a period of usually less than four years, accompanied with symptoms of moderate pressure and moderate hypothyroidism, but unassociated with previous infection, thyrotoxicosis, or other known cause for goiter, should cause suspicion of the disease. Diagnosis is made when the clinical syndrome is combined with the pathologic picture of thyroid cellular degeneration, diffuse lymphocytic infiltration with lymph-follicle formation, and, occasionally, slight increase in fibrous tissue. . . . Treatment consisted of either subtotal thyroidectomy or removal of a biopsy specimen, followed by x-ray therapy." (H. Statland; M. M. Wasserman, and A. L. Vickery. Arch. Int. Med. 5:659 November 1951).

THERAPEUTIC SUGGESTIONS

Postencephalitic Convulsions

Approximately 10% of epileptic patients develop convulsions after encephalitis. 25 patients were selected showing severe clinical epilepsy, uncontrolled by high doses of anticonvulsant drugs. 12 patients were under age 10, 5 were under age 20. Treatment administered: 250 mgs. aureomycin every six hours in addition to anticonvulsant drugs in children under 14; in older children and adults, 500 mgs. aureomycin every 6 hours. Treatment lasted for 5 to 6 weeks. If no clinical or electroencephalographic improvement was noticed during the first week, the dosage was increased by 250 mgs. every 6 hours. 10 of the 25 cases showed lessening of seizure activity in the EEG. Clinical improvement took place with the disappearance of the seizure pattern in the EEG. 4 patients were free of seizures for about 6 weeks in spite of reduction of anticonvulsant therapy. Of the 10 patients who improved, 9 had a medical history of either encephalitis or an acute febrile disease shortly before the onset of the convulsions. No patient whose seizure were due to head injury or who had no history of previous febrile disease improved. (F. W. Stamps; E. L. Gibbs and E. Haase. *Dis. Nerv. Syst.* 12:227, August 1951).

Brucellosis

"A follow-up study was made on 48 patients with bacteriologically proved brucellosis who were treated with one of the following: a combination of streptomycin and sulfadiazine, aureomycin, or chloramphenicol. *Brucella abortus* was the cause of illness in 44 of the 48 patients. Among 21 patients treated with streptomycin and sulfadiazine, there were 11 persons who promptly re-

covered and remained well; six patients had positive blood cultures after treatment, although two of these persons had no complaint of ill-health, and five others had residual complaints of ill-health. Among 2 patients receiving aureomycin, 1 recovered promptly without relapse. 3 patients had a relapse, 1 with positive blood culture, and 5 patients had residuals of ill-health. Of eight patients receiving chloramphenicol, two recovered completely; one showed no improvement; the bacteremia persisted in one, and four had residuals of ill-health". In general, the dose of streptomycin was 1 gm. administered intramuscularly twice daily for 7 to 14 days, with oral sulfadiazine in a dose of 1 gm. 4 times daily for 21 days. Aureomycin alone was given 0.5 gm. orally 4 times a day for 10 to 21 days. Chloramphenicol was administered 0.5 gm. 4 times daily for 10 days followed by 0.25 gm. 8 times daily for 10 days. (W. W. Spink; W. B. Hall; R. Magoffin. *Arch. Int. Med.* 4:419, October 1951).

Hemorrhoids-Hemorrhoidectomy

"1)Expose the hemorrhoidal mass by applying a clamp and drawing outward. The clamp may be Allis, Pennington, Mixer or any other type. 2)Dissect the veins away from the adjacent and subjacent normal tissue. 3)Carry the dissection to 1 cm. above the external sphincter. 4)Place the suture in the pile pedicle and tie off or clamp off the basal hemorrhoidal tissue. Excise tissue. 5)Approximate the mucosa, but not the skin, or leave the wound open. (A. J. Cantor. in *Atlas of Proctology and Surgery*. Am. J. Proctol., 3:13, September 1951).

Wangensteen Suction in Surgery

"Ever since introduction of gastric suction by Wangenstein, we have employed the Wangenstein tube routinely in all patients subjected to laparotomy except in the simplest procedures, such as an appendectomy. In this way we have been able to do away almost completely with postoperative nausea and vomiting, abdominal distention, and gastric dilatation. As a result of trauma and its associated ileus, the secretions which are normally poured into the upper part of the gastrointestinal tract, that is from the stomach, the duodenum, the liver and pancreas, and which normally are transported by peristalsis into the lower part of the intestinal tract from whence they are absorbed, remain in the upper part of the digestive tube, and if not removed, cause nausea and vomiting. By means of an indwelling catheter and suction, these secretions are removed and the stomach and upper intestinal tract are kept empty. In this way a persistent adynamic ileus is frequently prevented and resumption of normal gastrointestinal activity occurs early." (Alton Ochsenr. Minnesota Medicine 10:991, October 1951).

Cardiovascular Syphilis

The authors report their experiences with penicillin treatment in dosages from two to twelve million units in patients with cardiovascular syphilis. The relatively frequent Jarish-Herxheimer reaction as complication of antisyphilitic treatment in these cases was not observed; only six patients who also had neurosyphilis showed slight elevation of temperature during the first two days of treatment. The authors feel that penicillin treatment alone is the therapy of choice in cardiovascular syphilis. (H. A. Sinclair and B. Webster. Am. J. Syph., Gonorr. and Ven. Dis. 35:318, July 1951).

Subacute Bacterial Endocarditis

Authors report on 5 cases who were treated with and tolerated 9,600,000 units of crystalline and procaine penicillin in oil by intermittent intramuscular injection daily for thirty days. In all cases a bacteriologic cure was achieved and in all but one patient with intercurrent myocardial infection a clinical cure was produced. (M. M. Chertack; W. R. Best and F. K. Hick, Illinois Med. J. 4:228, October 1951.)

Dilation and Curettage

Author lists as main contraindications acute cervical lesions and vaginitis, since pelvic inflammatory disease may be a sequela. The chronically infected cervix can be treated by means of preliminary conization which also makes dilatation of the cervix easier. Complications of D. & C. are the following: lacerations of cervix when forceful dilatation is employed; perforation of uterus for which predisposing factors are inadequate cervical dilatation, too small or too large a curet, boggy uterus, or a uterus with soft spots (often a sign of carcinomatous areas). In case of perforation curettage should be discontinued and the patient should be returned to bed. If there is excessive hemorrhage into the peritoneal cavity laparotomy should be done and the perforation of the uterus should be repaired. Infection should be treated with antibiotics; prophylactic chemotherapy also may be advisable. When bowels are drawn into the uterus on occasion of the perforation, laparotomy is necessary. The majority of perforations result in no remarkable complications so that surgical intervention is not necessary. (James S. Krieger. Cleveland Clinical Quarterly, 4:285, October 1951).

BOOK REVIEWS

Books on History of Medicine

An interesting contribution to medicine in the Renaissance is the life story of Ugo Benzi¹. His *Consilia*, his *Commentaries* and his *Regimen of Health* have inspired many physicians long after his death. Benzi was a physician of great acumen as it reflects from his dialectic diagnostic method in his *Consilia*. The biography of an Icelandic physician of the thirteenth century² leads to quite a different environment, both in natural character and in medical aspects. This work is very valuable as it affords insight into historical material not sufficiently considered in evolution of medicine. Again to an entirely dissimilar ambient historical sphere are we marshalled by Dr. Macht³ who in a very scholarly way presents and interprets scriptural passages referring to diseases of the heart and the blood. This book is of considerable historical significance as it reveals the state of medical knowledge

as emanating from Hebrew scriptures. A book which cannot be called historical in a strictly scientific way which, however, mirrors the historical struggle of the first women physicians in this country⁴ is the vivid autobiography of Dr. Margaret R. Stewart who for 25 years was in the Public Health Service and the Veteran's Administration. It is the book of a good physician, of a great American and a womanly human being.

1. Ugo Benzi. *Medieval Philosopher and Physician*. 1376-1439. By Dean Putnam Lockwood. The University of Chicago Press, Chicago, 1951. 441 pages. Cloth. \$8.
2. The Saga of Hrafn Sveinbjarnarson. The Life of and Icelandic Physician of the Thirteenth Century. By Anne Tjomsland, M.D. Ithaca, N.Y., Cornell University Press, 65 pages.
3. The Heart and Blood in the Bible. By David I. Macht. Bone Press, Baltimore, Md. 1951. 79 pages. Cloth. \$2.
4. From Dugout to Hilltop. By Margaret R. Stewart, M.D. Murray and Gee, Inc. Culver City, Cal., 1951. 233 pages. Cloth. \$3.75.

Books On Internal Medicine

Physically introduced fever and fever chemotherapy¹ have become standard procedures in a number of diseases such as syphilis, gonococcal infections, chorea minor, rheumatic fever, brucellosis, some diseases of the eye, etc. The author describes methods, indications and contraindications judiciously. Radiation and Radiation Diseases have become a major issue for every general practitioner. A collection of instructive lectures on theoretical and practical problems has been presented by the University of Michigan.² This brochure is to be highly recommended.

Alcoholism frequently is a disease with which the general practitioner is confronted.³ Dr. Williams approaches the therapeutic problem from a nutritional viewpoint and recommends a dietary treatment. It has been long known that nutritional deficiencies are factors in alcohol pathology. This book by the discoverer of pantothenic acid should be earnestly taken into consideration. Any contribution to the diagnosis of pancreatic diseases is a worthwhile addition to the practicing physician's library.⁴ This impressive illustrated and clearly written

book on x-ray diagnosis will serve as a fine means of orientation. The bibliography is comprehensive. To keep the physician abreast of the chemistry and functions of the vitamin B complex whose importance in therapy is ever increasing, a reference book⁵ such as Robinson's extensive elaboration is a very desirable survey of all the literature published. A similarly important work dealing with physical biochemistry⁶ will familiarize the reader with the integration of physical and biological problems and, specifically with essential subjects such as use of isotopes as tracer elements, electrophoresis, the pH problems, osmotic pressure, etc. This book is not an easy, but a rewarding reading.

Allergy has become one of the most widely publicized ailments. Dr. Feinberg's book⁷ which instructs the allergic patient, his family, and any person who is concerned in his profession with the problems involved about diagnostic and therapeutic methods, is a clear and 'unsensational exposition' of all important aspects which every doctor can recommend his allergic patients. Cholesterol as a cause of arteriosclerosis has many champions among physicians although there have been also a number of differing opinions in the literature. However the outcome of the controversy may be, a book on low fat, low cholesterol diet⁸ will help in clarifying the question. The book is a cooperative work of dieticians and doctors and demonstrates how to prepare a varied diet in avoiding food with high fat and cholesterol contents. A

book on physiology under the leadership of Houssay⁹ justifies the highest expectations. Houssay's collaborators are all outstanding Argentine physicians; the work reflects the excellent scientific standing of physiology in Argentina. This book is much more than a textbook or a reference book. It is an account of essential progress in research and clinical application of physiology, in many ways new in approaches and methods. Because of Houssay's decisive influence the chapters dealing with problems of endocrinology are particularly interesting. The translation appears to be flawless.

1. *Fever Therapy*. By H. Worley Kendall, M.D. Charles C. Thomas, Publisher. Springfield, Ill., 1951, 101 pages. Cloth. \$2.25.
2. *Lectures Presented at the Inservice Training Course in Radiological Health*. February 5, 6, 7 and 8, 1951. University of Michigan, School of Public Health. Ann Arbor, Michigan, 1951. 139 pages. Paper. \$3.
3. *Nutrition and Alcoholism*. By Roger J. Williams. University of Oklahoma Press, Norman, Okla. 82 pages. Cloth. \$2.
4. *Roentgen Manifestations of Pancreatic Disease*. By Maxwell H. Poppel, M.D. Charles C. Thomas, Publisher. Springfield, Ill. 1951. 389 pages. Cloth. \$10.50.
5. *The Vitamin B Complex*. By F. A. Robinson, M.Sc. John Wiley & Sons, Inc. New York, 1951. 688 pages. Cloth. \$9.
6. *Physical Biochemistry*. By Henry B. Bull, Ph.D. Second Ed. John Wiley & Sons, Inc. New York, 1951. 365 pages. Cloth. \$5.75.
7. *Allergy: Facts and Fancies*. By Samuel M. Feinberg, M.D. Harper & Brothers, New York, 1951. 173 pages. Cloth. \$2.50.
8. *The Low Fat. Low Cholesterol Diet*. by E. Virginia Dobbin; H. J. Gofman, M.D.; Helen C. Jones; Lenore Lyon and Clara-Beth Young. Doubleday & Company, Inc., Garden City, N.Y. 1951, 371 pages. Cloth. \$3.50.
9. *Human Physiology*. By Bernardo A. Houssay, M.D.; Juan T. Lewis, M.D.; Oscar Orias, M.D.; Eduardo Braun Menendez, M.D.; Enrique Hug, M.D.; Virgilio G. Foglia, M.D.; Luis E. Leloir, M.D. Translated by Juan T. Lewis and Olive T. Lewis. McGraw-Hill Book Company, Inc. New York. 1951. 1118 pages. Cloth. \$14.

Books on Surgery

Dr. Neubuerger's histo-pathological Atlas¹ will prove to be a valuable aid for every physician with a surgical practice. The book consists

entirely of illustrations with concomitant interpreting text. The contents are very comprehensive and refer to all organs and pathologic

conditions. If, at least, some of the illustrations would have been colored, the orientation would have been facilitated. An excellent work, prepared with painstaking thoroughness and reflecting great personal experience, is Dr. Narath's presentation on the renal pelvis and ureter². While the book is written for the urologist, the general practitioner will read it with great benefit. A book of high standard and practical importance is Dr. Steel's Roentgen Anatomy³. This is a new and excellent empirical approach to anatomical problems as they arise in general practice. The illustrations are impressive. The work will be a worthwhile addition to the practitioner's library. A German presentation on the surgery of the thyroid gland⁴ is a concise compilation of surgical methods. The exposition is rather brief and does not exhibit any new viewpoints. The two volumes on the surgical treatment of the motor-skeletal system⁵ are classical descriptions authored by experts in their fields. The first volume deals with deformities, paralytic disorders, muscles, fasciae and ganglia, tumors, amputations; the second one is concerned with fractures, dislocations, sprains, injuries to muscles and tendons and birth injuries. The illustrations are outstanding and the contributions of the 46 authors, taking into account the practical needs of the physician, are authoritative sources of information. A symposium on burns is one of the most actual topics of this time. This publication of the National Research Council illuminates and discusses all phases and sides of the problem, theoretically and practically. It is particularly concerned with military and civil defense aspects. An extensive work on plastic surgery of the nose⁷ familiarizes the reader with the indications for surgery and the surgical techniques of this relatively new branch

of plastic surgery. Essential are those parts of the book which deal with the plastic repair after fractures and injuries, after removal of benign and malignant tumors, and in the care of congenital abnormalities. A work which will be of interest to all general practitioners is Dr. Parkinson's arresting presentation of the tonsil and allied problems⁸. This book is a comprehensive, judiciously prepared, and well rounded exposition of anatomy, histology, embryology, physiology and pathology of the nasopharynx and the tonsils. The last three chapters deal with tonsillectomy in particular. Military Surgery has come into the foreground of medical interest in recent years. Dr. Hampton's work on wounds of the extremities⁹ reflects great experience and covers all details of this important surgical specialty with profundity; it gives solid and full information.

1. Atlas of Histologic Diagnosis in Surgical Pathology. By Karl T. Neubuerger M.D. With a Section on Exfoliative Cytology, by W. T. Wikle, M.D. The Williams and Wilkins Company, Baltimore, 1951, 40 pages. Cloth. \$11.
2. Renal Pelvis and Ureter. By Peter A. Narath, M.D. Grune & Stratton, New York, 1951. 429 pages. Cloth. \$12.50.
3. Roentgen Anatomy. By David Steel, M.D. Charles C. Thomas, Publisher, Springfield, Illinois, 1951. 106 pages. Cloth. \$8.
4. Die Chirurgie der Schilddruese. By Prof. Dr. med. Heinz Florcken. Walter De Gruyter & Co. Berlin, Germany. 1951. 92 pages. Cloth. DM12.
5. Surgical Treatment of the Motor-Skeletal System. Supervising Editor Frederic W. Bancroft M.D.; Assoc. Editor Henry C. Marble, M.D. Two Parts. Part I. 636 pages. Part II. 665 pages. Cloth. Second Edition. 1951. J. P. Lippincott Philadelphia.
6. Symposium on Burns. Nov. 2-4, 1950. National Academy of Sciences — National Research Council. Washington, D.C. 1951. 207 pages. Paper. \$1.50.
7. Plastic Surgery of the nose. By James Barrett Brown, M.D. and Frank McDowell, M.D. St. Louis. The C. V. Mosby Company, 1951, 427 pages. Cloth. \$15.
8. Tonsil and Allied Problems. By Roy E. Parkinson, M.D. The Macmillan Company, New York, 1951. 432 pages. Cloth. \$12.
9. Wounds of the Extremities in Military Surgery. By Oscar P. Hampton, M.D. St. Louis. The C. V. Mosby Company, 1951. 434 pages. Cloth. \$10.

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